Elektronische Bauelemente

SSG4424

13.8A, 30V, $R_{DS(ON)}$ 9mΩ

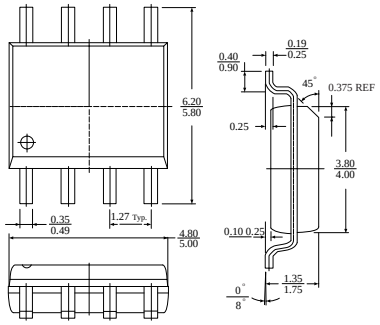
N-Channel Enhancement Mode Power Mos.FET

RoHS Compliant Product

SOP-8

Description

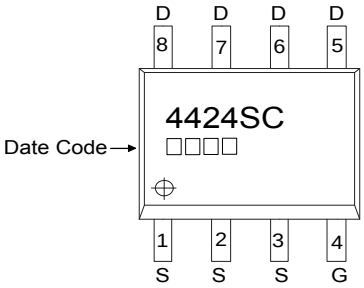
ruggedized device design, Ultra low on-resistance and cost-effectiveness.
The SOP-8 is universally preferred for all commercial
industrial surface mount application and suited for low
voltage applications such as DC/DC converters.

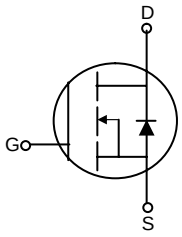


Dimensions in millimeters

Features

* Low on-resistance
* Simple drive requirement
* Fast switching Characteristic





Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[3]	I_D@T_A=25 °C	13.8	A
Continuous Drain Current[3]	I_D@T_A=70 °C	11	A
Pulsed Drain Current[1]	I_{DM}	50	A
Total Power Dissipation	P_D@T_A=25 °C	2.5	W
Linear Derating Factor		0.02	W/°C
Operating Junction and Storage Temperature Range	Tj, Tstg	-55~+150	°C

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient[3]	Rthj-a	50	°C/W

Elektronische Bauelemente

SSG4424

13.8A, 30V, $R_{DS(ON)}$ 9mΩ

N-Channel Enhancement Mode Power Mos.FET

Electrical Characteristics(Tj=25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	30	–	–	V	V_{GS}=0V, I_D=250uA
Breakdown Voltage Temp. Coefficient	$\triangle BV_{DS}/\triangle Tj$	–	0.02	–	V/°C	Reference to 25°C, I_D=1mA
Gate Threshold Voltage	$V_{GS(th)}$	1.0	–	3.0	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Source Leakage Current	I_{GSS}	–	–	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current (Tj=25°C)	I_{DSS}	–	–	1	uA	V_{DS}=30V, V_{GS}=0
Drain-Source Leakage Current (Tj=70°C)		–	–	25	uA	V_{DS}=24V, V_{GS}=0
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	–	–	9	mΩ	V_{GS}=10V, I_D=13A
		–	–	14		V_{GS}=4.5V, I_D=10A
Total Gate Charge[2]	Qg	–	23	35	nC	I_D=10A V_{DS}=15V V_{GS}=5V
Gate-Source Charge	Qgs	–	6	–		
Gate-Drain ("Miller") Charge	Qgd	–	15	–		
Turn-on Delay Time[2]	$Td_{(ON)}$	–	13	–	nS	V_{DD}=25V I_D=1A V_{GS}=5V R_G=3.3Ω R_D=25Ω
Rise Time	Tr	–	9	–		
Turn-off Delay Time	$Td_{(Off)}$	–	35	–		
Fall Time	T_f	–	17	–		
Input Capacitance	Ciss	–	1920	3070	pF	V_{GS}=0V V_{DS}=15V f=1.0MHz
Output Capacitance	Coss	–	410	–		
Reverse Transfer Capacitance	Crss	–	300	–		
Forward Transconductance	Gfs	–	21	–	S	V_{DS}=10V, I_D=13A
Gate Resistance	Rg	–	0.9	–	Ω	f=1.0MHz

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Forward On Voltage[2]	V_{DS}	–	–	1.2	V	I_S=2.1A, V_{GS}=0V.
Reverse Recovery Time[2]	Trr	–	33	–	nS	Is=13A, V_{GS}=0V dI/dt=100A/uS
Reverse Recovery Charge	Qrr	–	26	–	nC	

Notes: 1.Pulse width limited by safe operating area.

2.Pulse width≦300us, dutycycle≦2%.

3.Surface mounted on 1 inch2 copper pad of FR4 board; 270 °C/W when mounted on min. copper pad.

Characteristics Curve

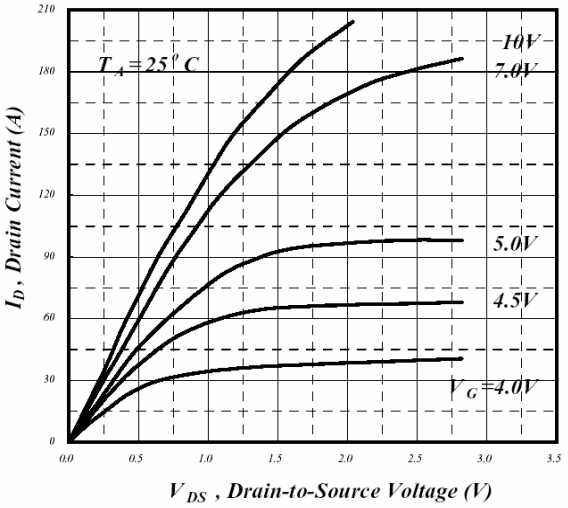


Fig 1. Typical Output Characteristics

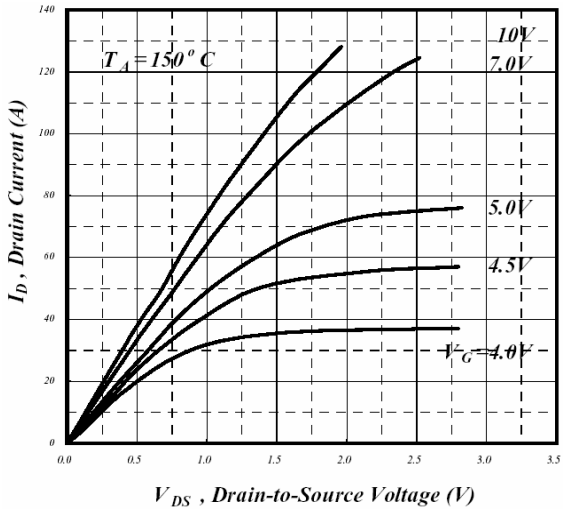


Fig 2. Typical Output Characteristics

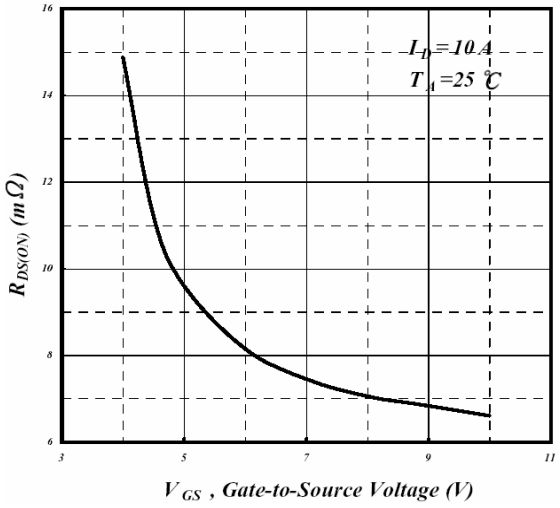


Fig 3. On-Resistance v.s. Gate Voltage

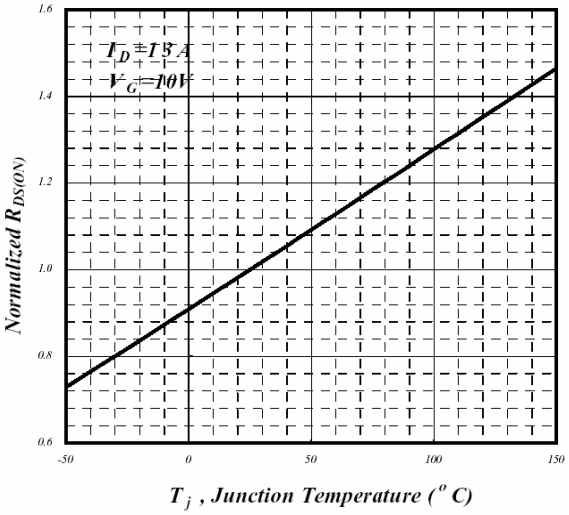


Fig 4. Normalized On-Resistance v.s. Junction Temperature

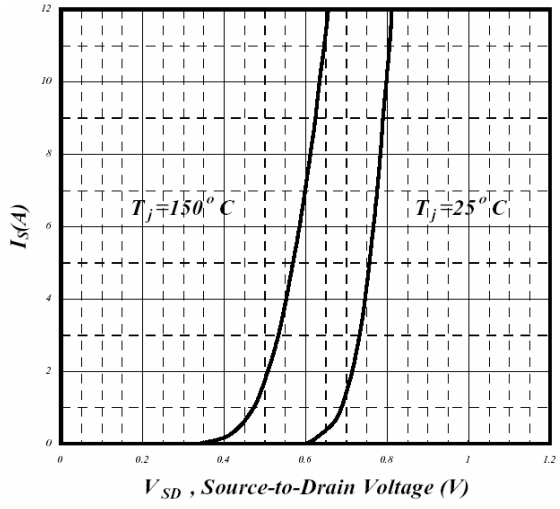


Fig 5. Forward Characteristics of Reverse Diode

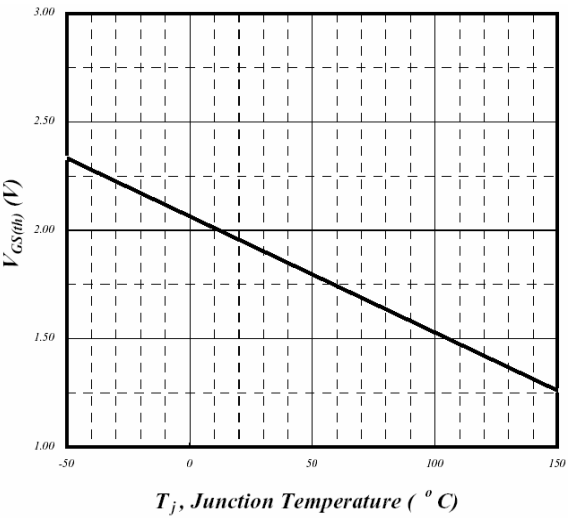


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

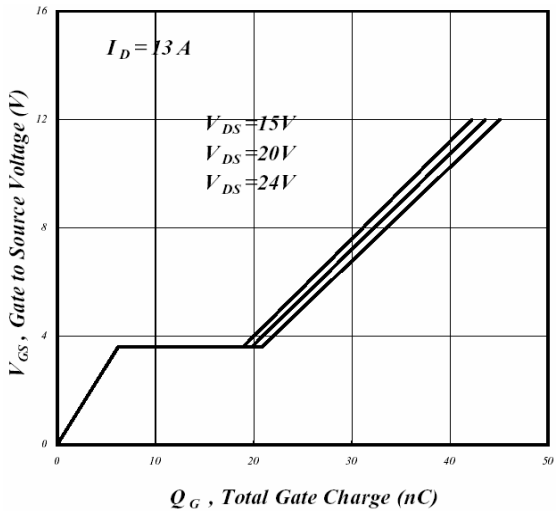


Fig 7. Gate Charge Characteristics

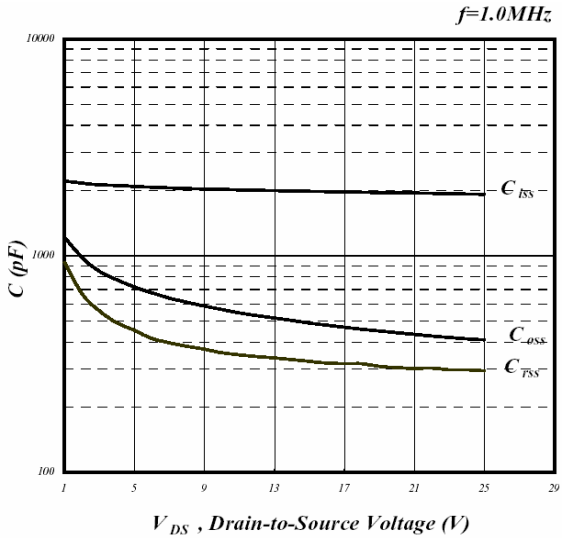


Fig 8. Typical Capacitance Characteristics

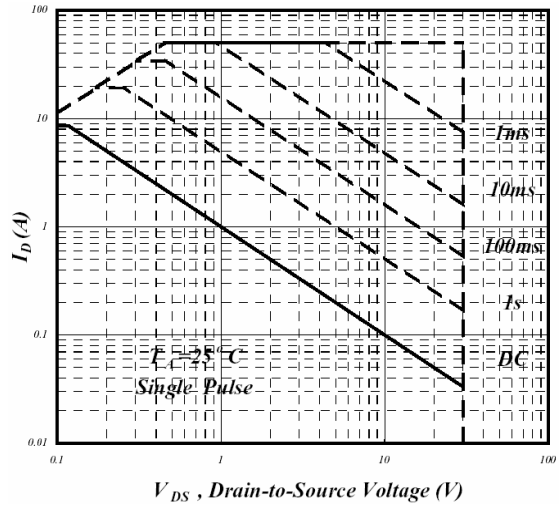


Fig 9. Maximum Safe Operating Area

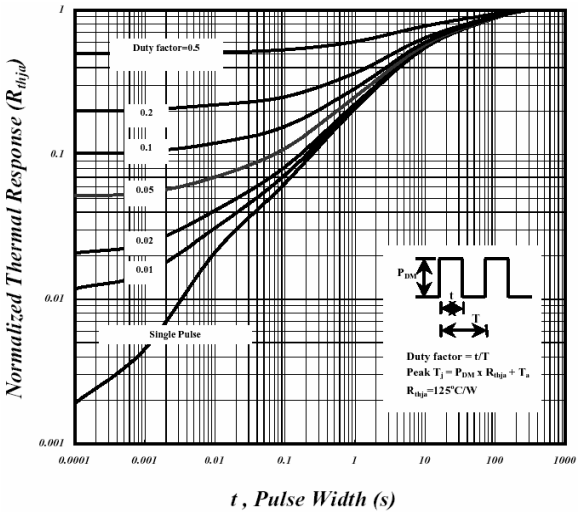


Fig 10. Effective Transient Thermal Impedance

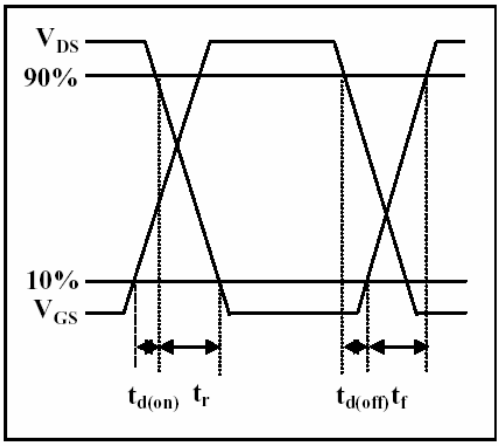


Fig 11. Switching Time Circuit

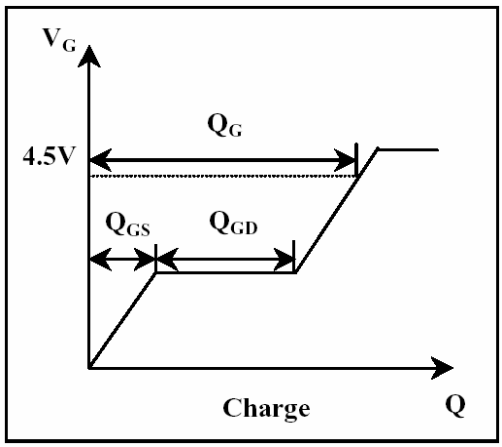


Fig 12. Gate Charge Waveform